

+

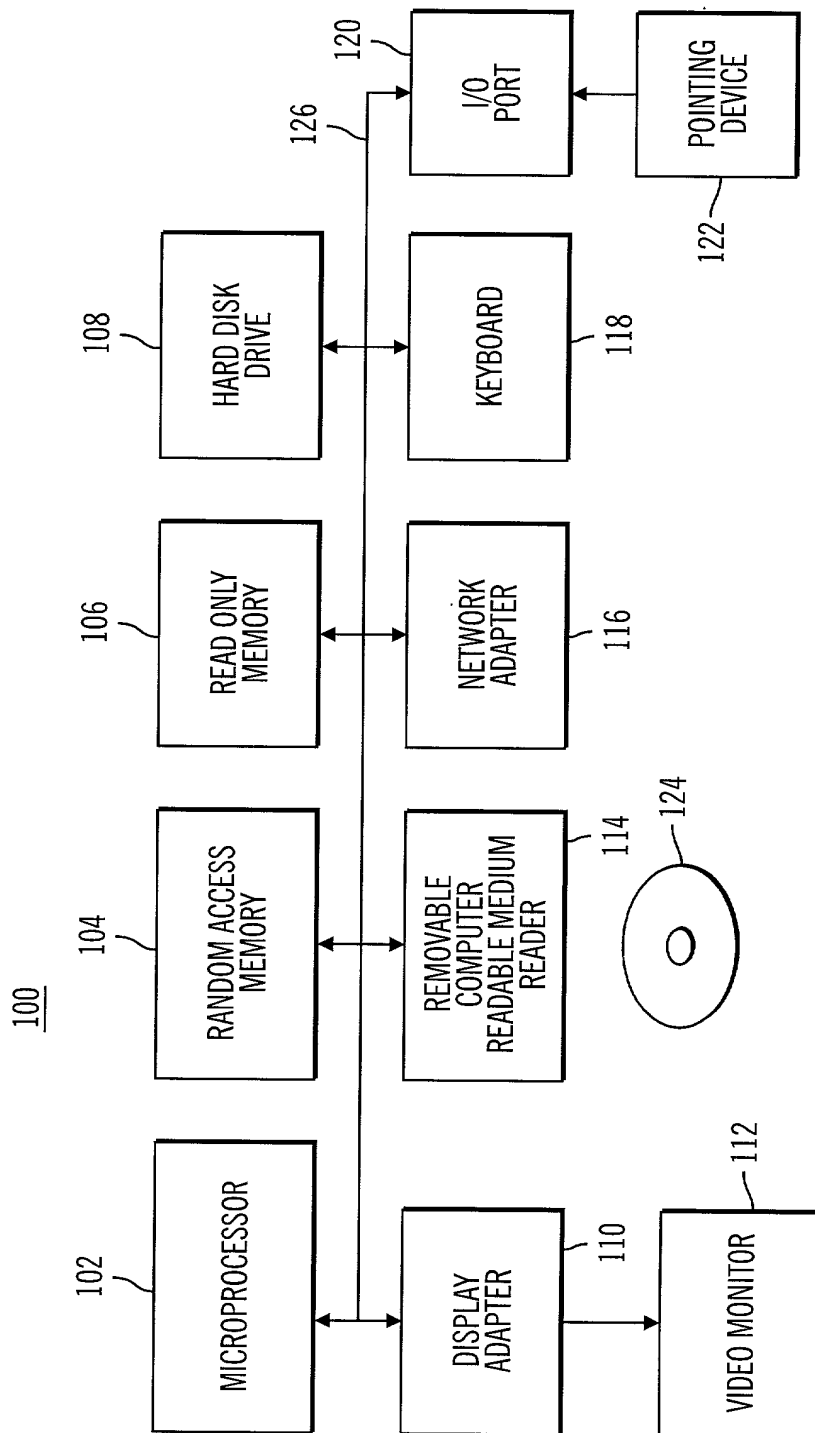


FIG. 1

+

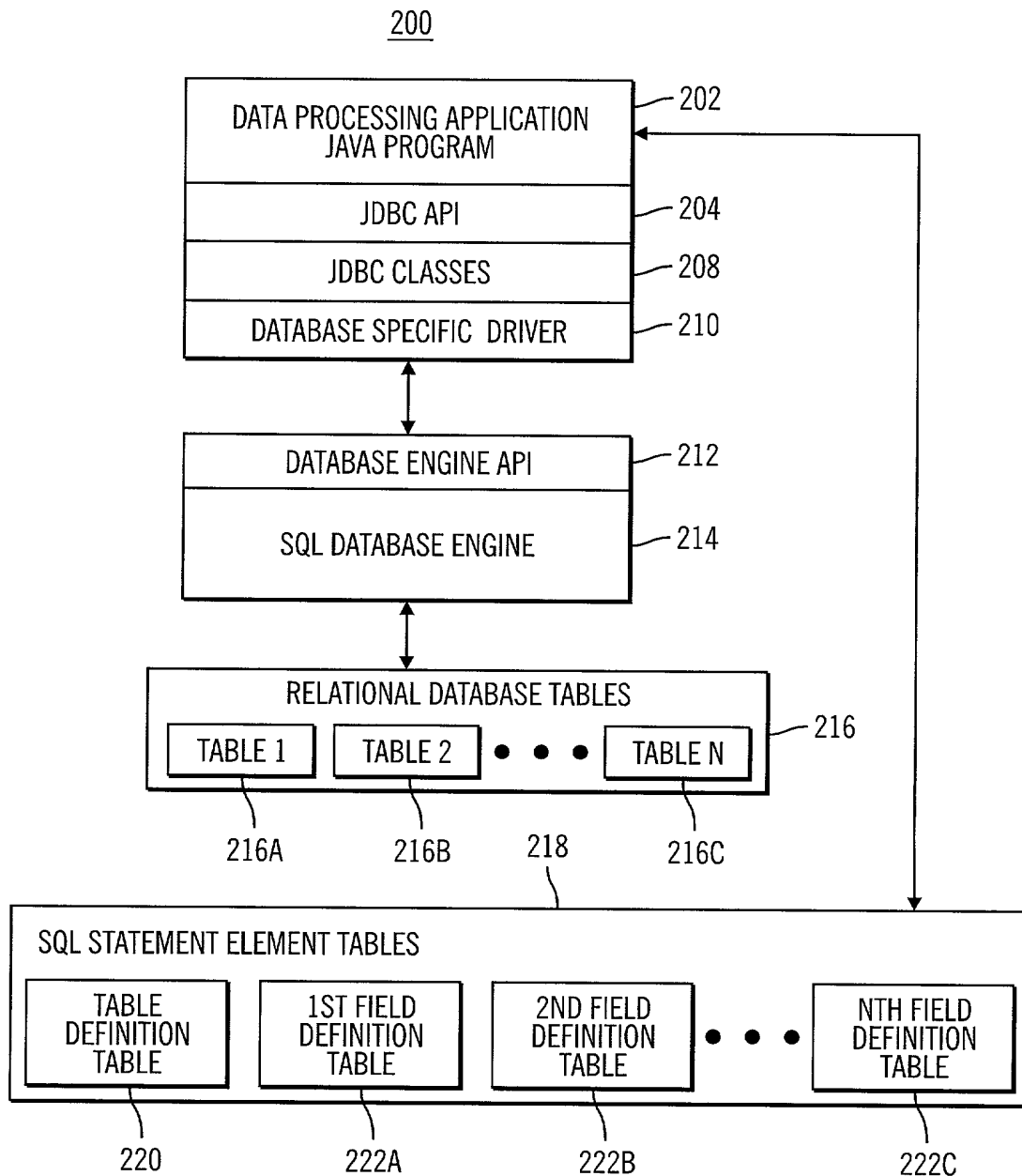


FIG. 2

+

EXAMPLE TABLE DEFINITION TABLE

300 EXPANDS 220

TARGET TABLENAME UTABLENAME ITABLENAME	QUERY TABLENAME QTABLENAME	QUERY SEARCH CLAUSE QSEARCH	TARGET ACTION ACTION	FIELDDEF TABLENAME FTABLENAME	TABLE SEQ # TABSEQ
OPERSTAT	TEMPSTAT		INSERT	OPERSTATTAB	1
UNITSTAT	OPERSTAT		UPDATE/INSERT	UNITSTATTAB	2
COMPLEXSTAT	UNITSTAT	COMPLEX ID = 1	UPDATE	COMPLEXTAB	3
COMPLEXSTAT	UNITSTAT	COMPLEX ID = 2	UPDATE	COMPLEXTAB	3

302 304 306 308 310 312

FIG. 3

+

EXAMPLE FIELD DEFINITION TABLES

FIELD DEFINITION TABLE: OPERSTAT

400 EXPANDS 222A

402	404	406	408	410	412	414	416	418
TARGET FIELD NAME TFIELD	QUERY SELECT CLAUSE SCLAUSE	QUERY GROUPBY CLAUSE GCLAUSE	UPDATE SET CLAUSE UCLAUSE	UPDATE WHERE CLAUSE WCLAUSE	INSERT FIELD CLAUSE ICLAUSE	FIELD JAVA TYPE JTYPE	SELECT FIELD SEQ # SFLD SEQ	TARGET FIELD SEQ# TFLDSEQ
COMPLEX	COMPLEX				COMPLEX	STRING	1	1
UNIT	UNIT				UNIT	STRING	2	2
OPER	OPER				OPER	STRING	3	3
SHIFTS	SHIFTS				SHIFT	INT	4	4
CALLS	OPER				CALLS	INT	5	5
WRKTIME	WRKTIME				WRK TIME	INT	6	6

FIELD DEFINITION TABLE: UNITSTATTAB

420 EXPANDS 222B

422	424	426	428	430	432	434	436	438
TARGET FIELD NAME TFIELD	QUERY SELECT CLAUSE SCLAUSE	QUERY GROUPBY CLAUSE GCLAUSE	UPDATE SET CLAUSE UCLAUSE	UPDATE WHERE CLAUSE WCLAUSE	INSERT FIELD CLAUSE ICCLAUSE	FIELD JAVA TYPE JTYPE	SELECT FIELD SEQ # SFLD SEQ	TARGET FIELD SEQ # TFLDSEQ
COMPLEX	COMPLEX	COMPLEX		COMPLEX =?	COMPLEX	STRING	1	1
UNIT	UNIT	UNIT		UNIT =?	UNIT	STRING	2	2
CALLS	SUM(CALLS)		CALLS =?		CALLS	INT	3	3
WRK TIME	SUM(WRKTIME)		WRKTIME =?		WRKTIME	INT	4	4
CUMCALLS			CUMCALLS = CUMCALLS +?		CUMCALLS	INT	3	5
CUMWRKTIME			CUMWRKTIME = CUMWRKTIME +?		CUMWRKTIME	INT	4	6

FIELD DEFINITION TABLE: COMPLEXSTATTAB

440 EXPANDS 222C

442	444	446	448	450	452	454	456	458
TARGET FIELD NAME TFIELD	QUERY SELECT CLAUSE SCLAUSE	QUERY GROUPBY CLAUSE GCLAUSE	UPDATE SET CLAUSE UCLAUSE	UPDATE WHERE CLAUSE WCLAUSE	INSERT FIELD CLAUSE ICCLAUSE	FIELD JAVA TYPE JTYPE	SELECT FIELD SEQ # SFLD SEQ	TARGET FIELD SEQ # TFLDSEQ
COMPLEX	COMPLEX			COMPLEX =?		STRING	1	1
CALLS	SUM(CALLS)		CALLS = CALLS +?			INT	2	2
HRSWORK	SUM(WRKTIME)		HRSWORK = HRSWORK +?			INT	3	3

500

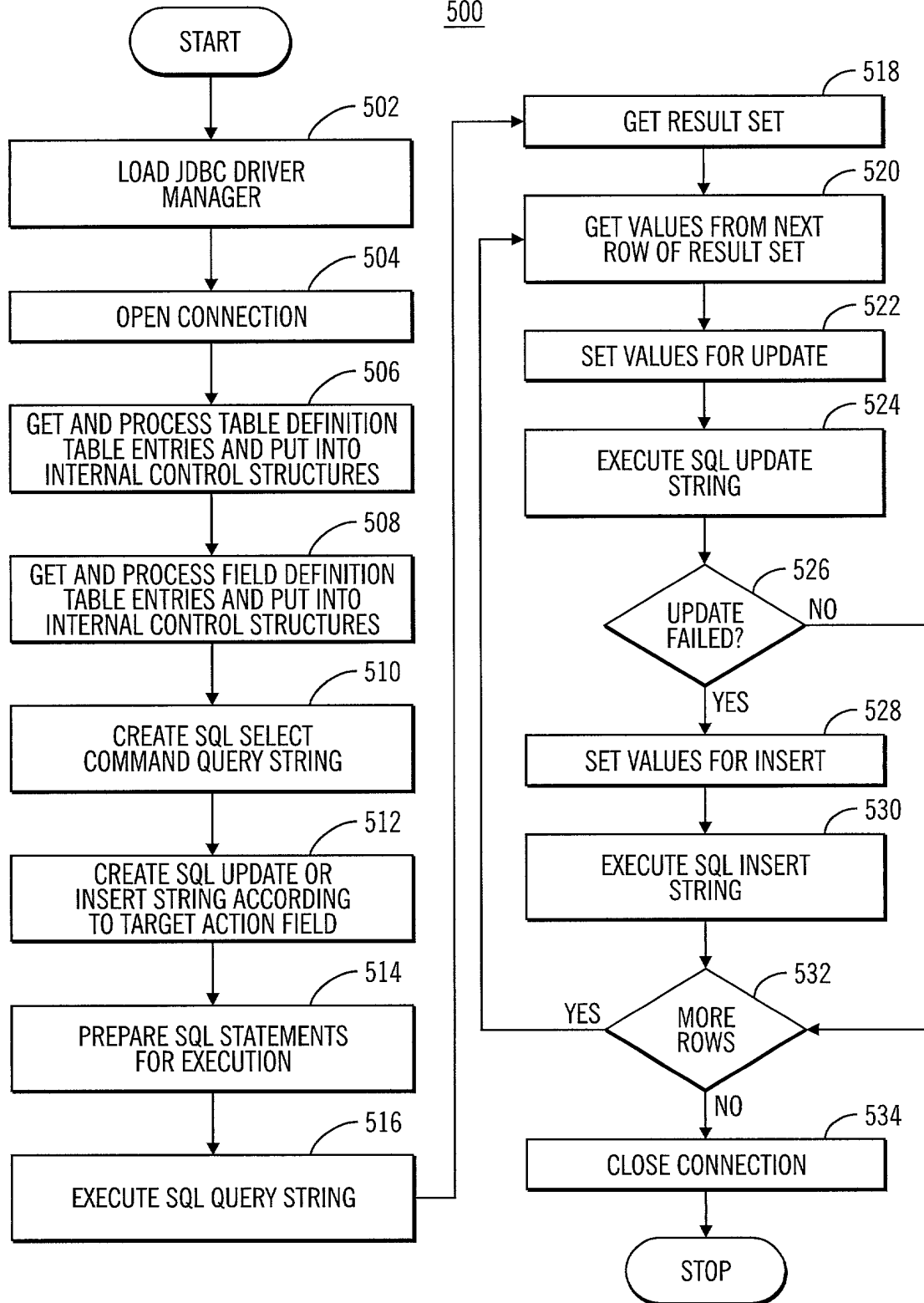


FIG. 5

7/19

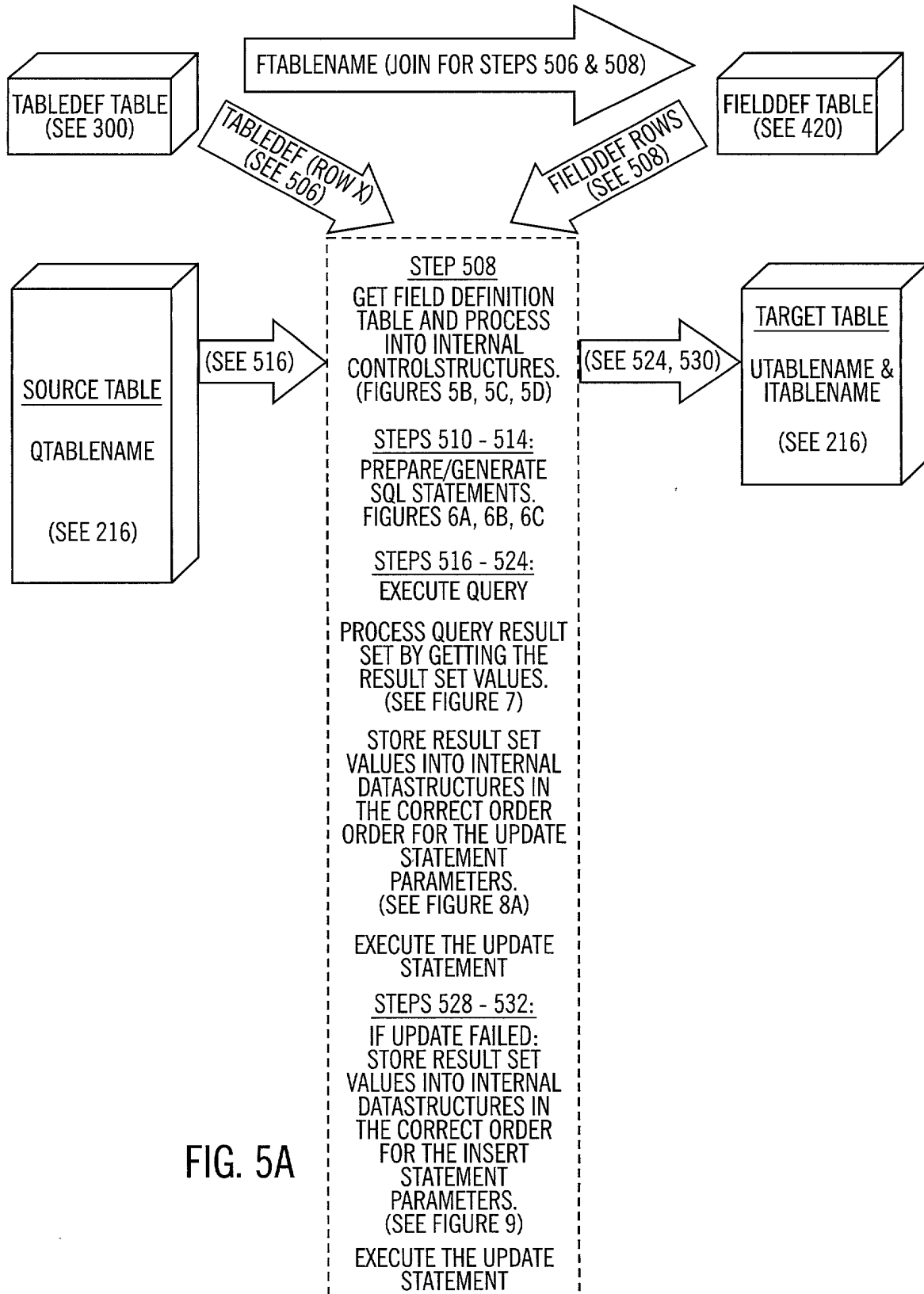


FIG. 5A

Select SCLAUSE, JTYPE, SFLDSEQ FROM UnitStatTab WHERE SCLAUSE is NOT NULL ORDER BY SFLDSEQ

```

i=1
While not end of resultset
{
  // Get values from next row of resultset
  SClause[i] = GetString [1]           // get SCLAUSE
  SJType[i] = GetString [2]           // get JTYPE
  SFldSeq[i] = GetInt [3]              // get SFldSeq
  i++
}
Ssize = i--:

```

FIG. 5B1

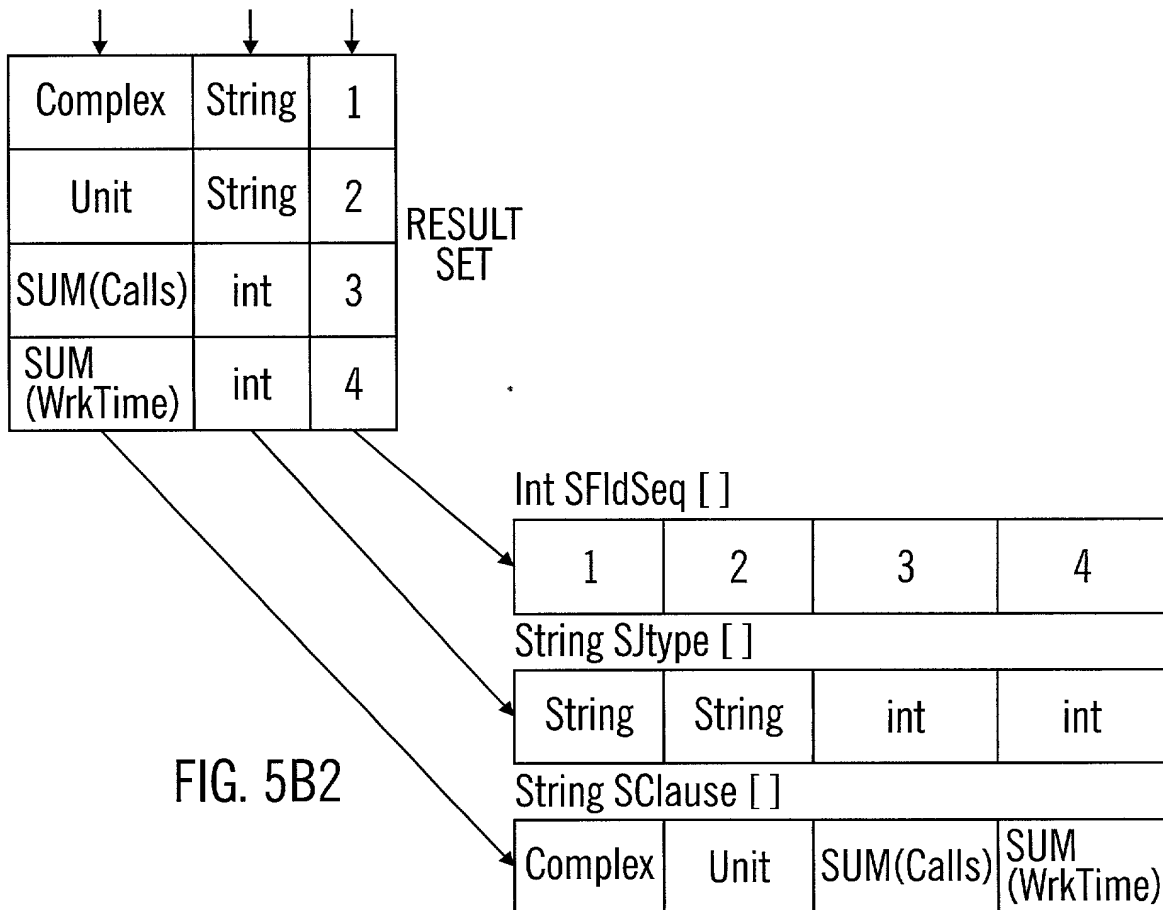


FIG. 5B2

9/19

556
Select GCLAUSE, SFLDSEQ FROM UnitStatTab WHERE GCLAUSE is
NOT NULL ORDER BY SFLDSEQ

```
i=1
While not end of resultset
{
  // Get values from next row of resultset
  GClause[i] = GetString [i]           // get GCLAUSE 557
  i++
}
Gsize = i--;
```

FIG. 5B3

SELECT GCLAUSE, SFLDSEQ FROM UnitStatTab WHERE GCLAUSE is
NOT NULL ORDER BY SFLDSEQ

Complex	1
Unit	2

RESULT
SET

FIG. 5B4

String GClause []

Complex	Unit
---------	------

SELECT UCLAUSE, JTYPE, SFLDSEQ, TFLDSEQ FROM UnitStatTab WHERE
UCLAUSE is NOT NULL ORDER BY TFLDSEQ

```
i=1
While not end of resultset
{
  // Get values from next row of resultset
  UClause[i] = GetString [1]           // get UCLAUSE
  UJType[i] = GetString [2]           // get JTYPE
  USFldSeq[i] = GetInt [3]             // get SFldSeq
  UFldseq[i] = i                       // reset sequence
  i++
}
Usize = i--;
```

FIG. 5C1

SELECT UCLAUSE, JTYPE, SFLDSEQ, TFLDSEQ FROM UnitStatTab WHERE UCLAUSE
is NOT NULL ORDER BY TFLDSEQ

Calls=?	int	3	3
WrkTime=?	int	4	4
CumCalls= CumCalls+?	int	3	5
CumWrkTime= CumWrkTime+?	int	4	6

RESULT
SET

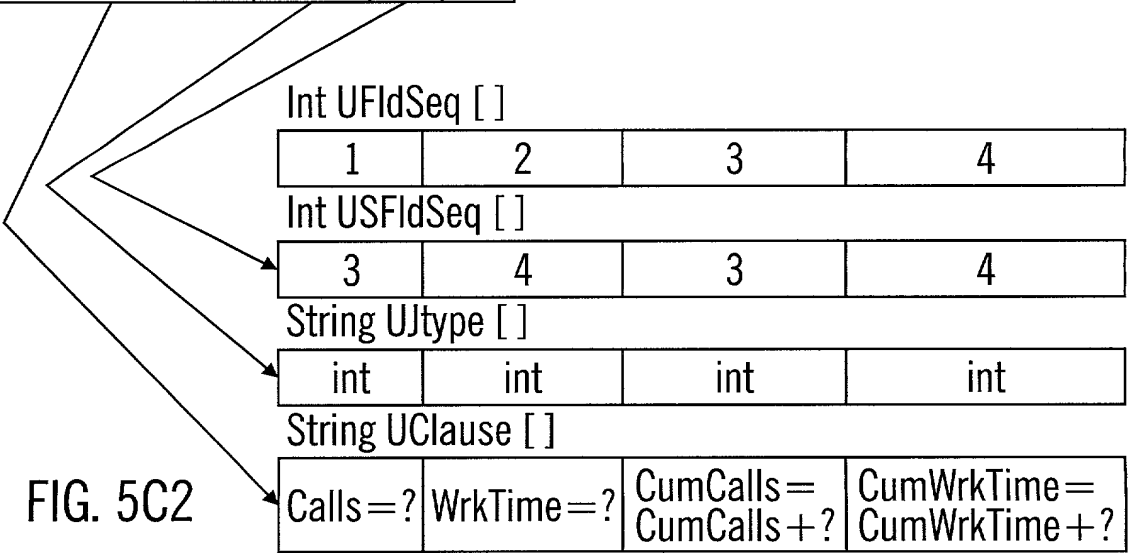


FIG. 5C2

```

SELECT WCLAUSE, SFLDSEQ, TFLDSEQ FROM UnitStatTab WHERE
WCLAUSE is NOT NULL ORDER BY TFLDSEQ
i=1
While not end of resultset
{
  // Get values from next row of resultset
  WClause[i] = GetString [1]           // get WCLAUSE
  WJType[i] = GetString [2]           // get JTYPE
  WSFldSeq[i] = GetInt [3]             // get SFldSeq
  WFldseq[i] = Usize + i              // reset sequence
  i++
}
Wsize = i--:
  
```

FIG. 5C3

SELECT WCLAUSE, SFLDSEQ, TFLDSEQ FROM UnitStatTab WHERE WCLAUSE is NOT NULL ORDER BY TFLDSEQ

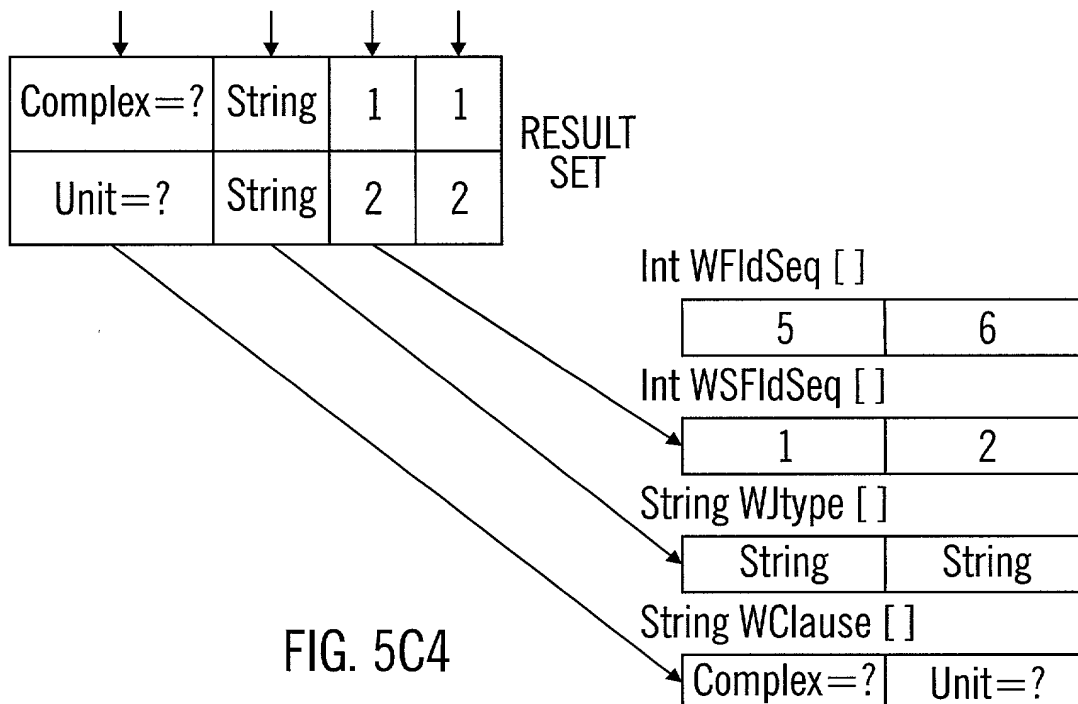


FIG. 5C4

12/19

SELECT ICLAUSE, JTYPE, SFLDSEQ, TFLDSEQ FROM UnitStatTab WHERE
ICLAUSE is NOT NULL ORDER BY TFLDSEQ

```

i=1
While not end of resultset
{
  // Get values from next row of resultset
  IClause[i] = GetString [1]           // get ICLAUSE
  JType[i] = GetString [2]           // get JTYPE
  ISFldSeq[i] = GetInt [3]           // get SFldSeq
  IFldSeq[i] = i                     // reset sequence
  i++
}
Isize = i--:
  
```

FIG. 5D1

SELECT ICLAUSE, JTYPE, SFLDSEQ, TFLDSEQ FROM UnitStatTab WHERE ICLAUSE is
NOT NULL ORDER BY TFLDSEQ

Complex	String	1	1
Unit	String	2	2
Calls	int	3	3
WrkTime	int	4	4
CumCalls	int	3	5
CumWrkTime	int	4	6

RESULT
SET

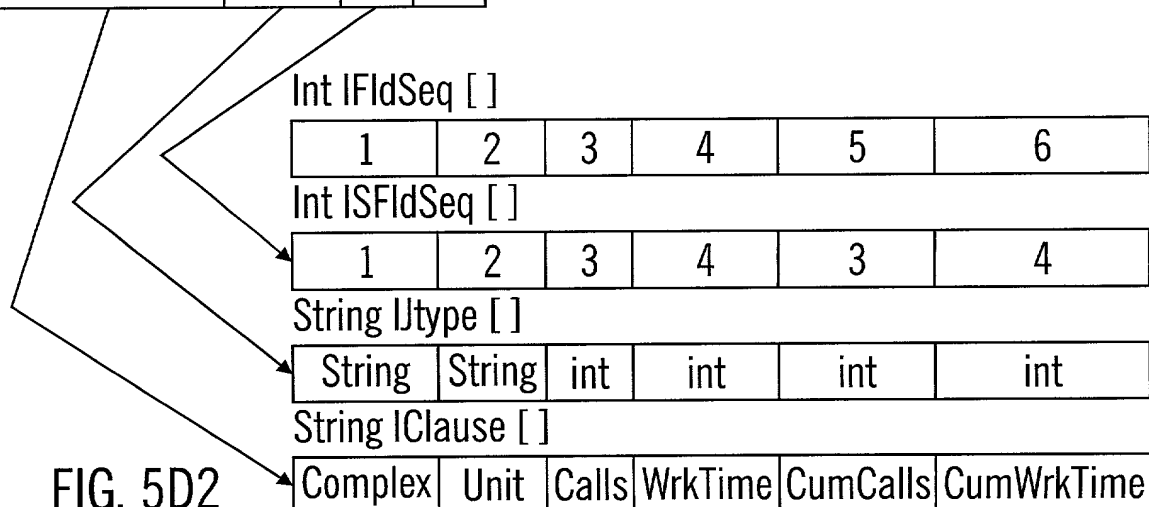


FIG. 5D2

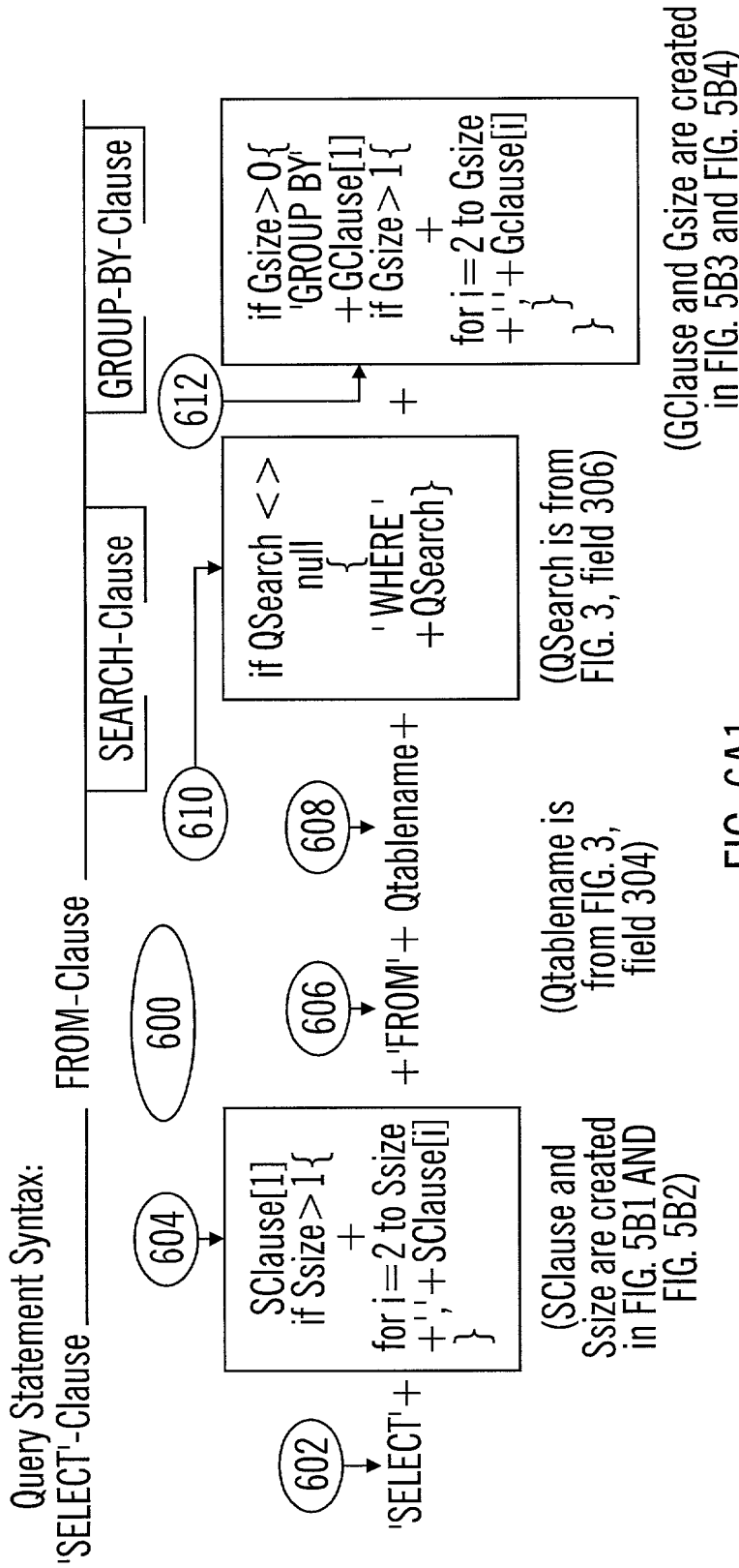


FIG. 6A1

Select Statement String which was built from 600 above.

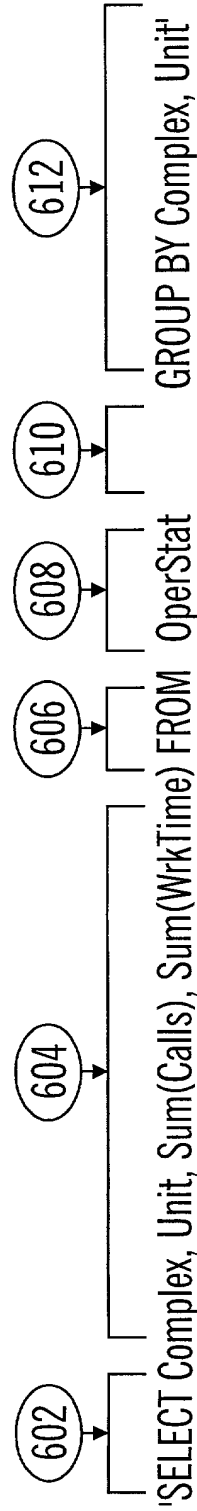


FIG. 6A2

+

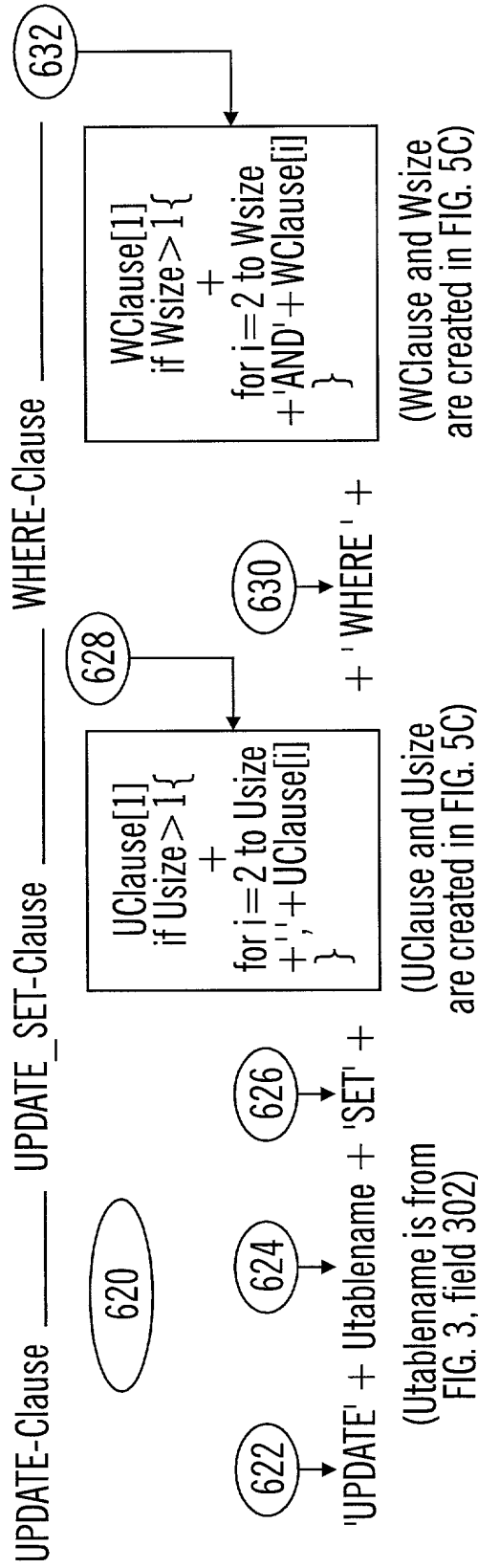


FIG. 6B1

Update Statement String which was built from 620 above.

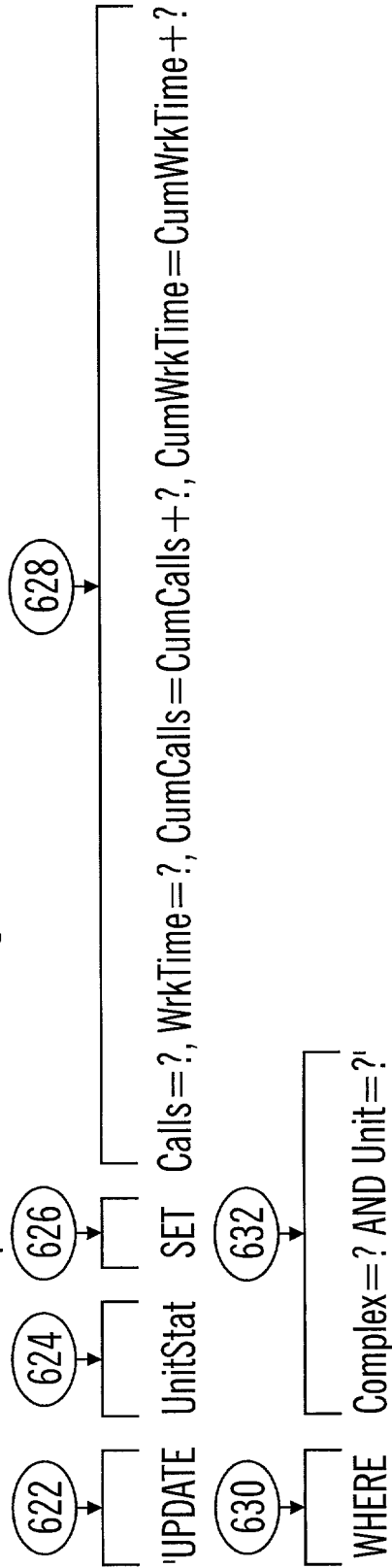


FIG. 6B2

+

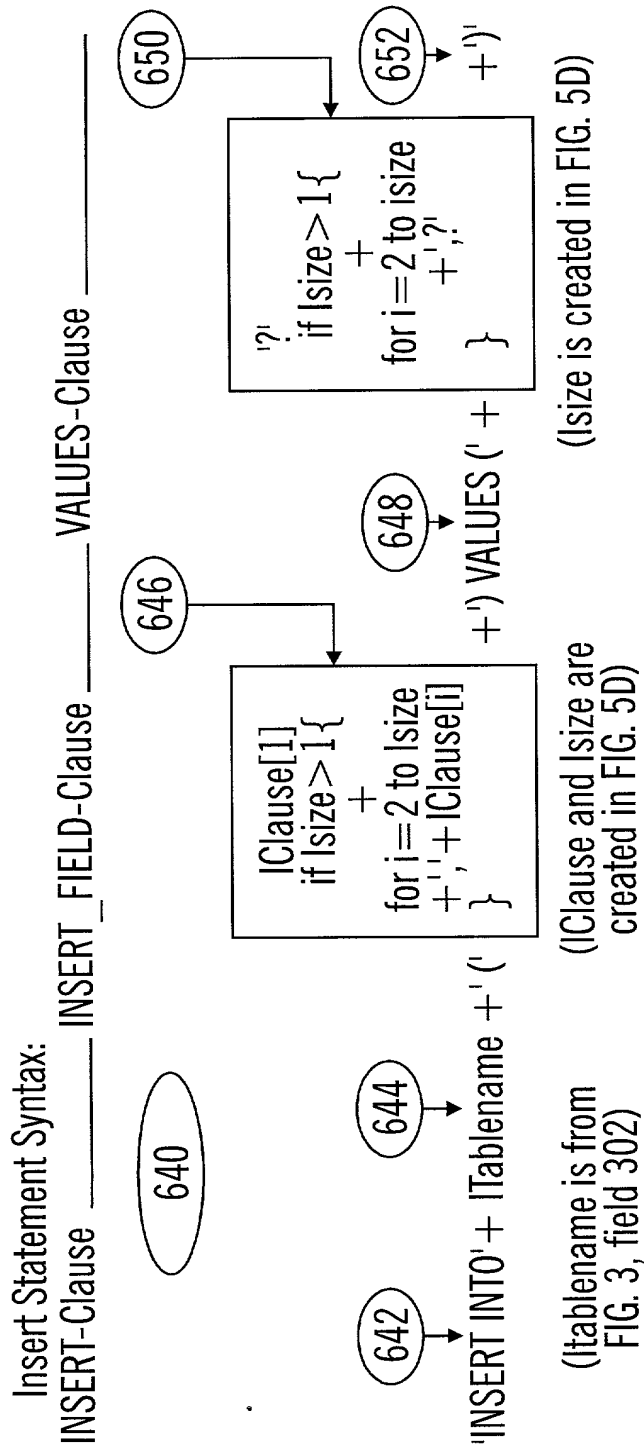


FIG. 6C1

Insert Statement String which was built from 640 above.

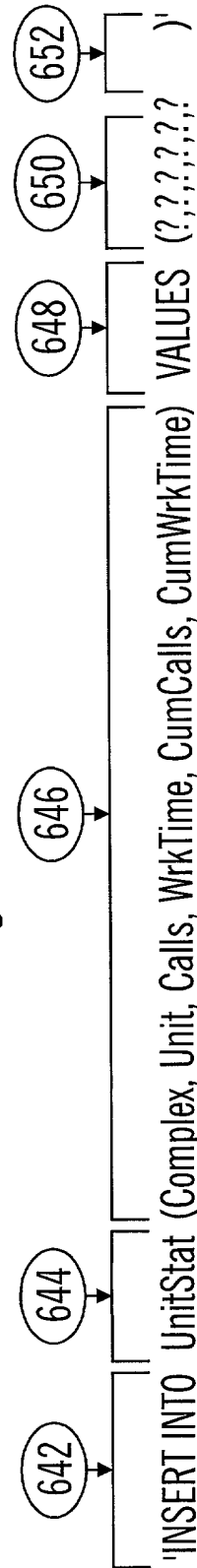


FIG. 6C2

'SELECT Complex, Unit, Sum(Calls), Sum(WrkTime) FROM OperStat
GROUP BY Complex, Unit'

```

For i=1 to Ssize
{
  j=SfIdSeq[i]
  if SJType[i]='String'
    StringRS[j]=GetString[i]
  else
    IntRS[j]=Getint[i]
}
    
```

FIG. 7A

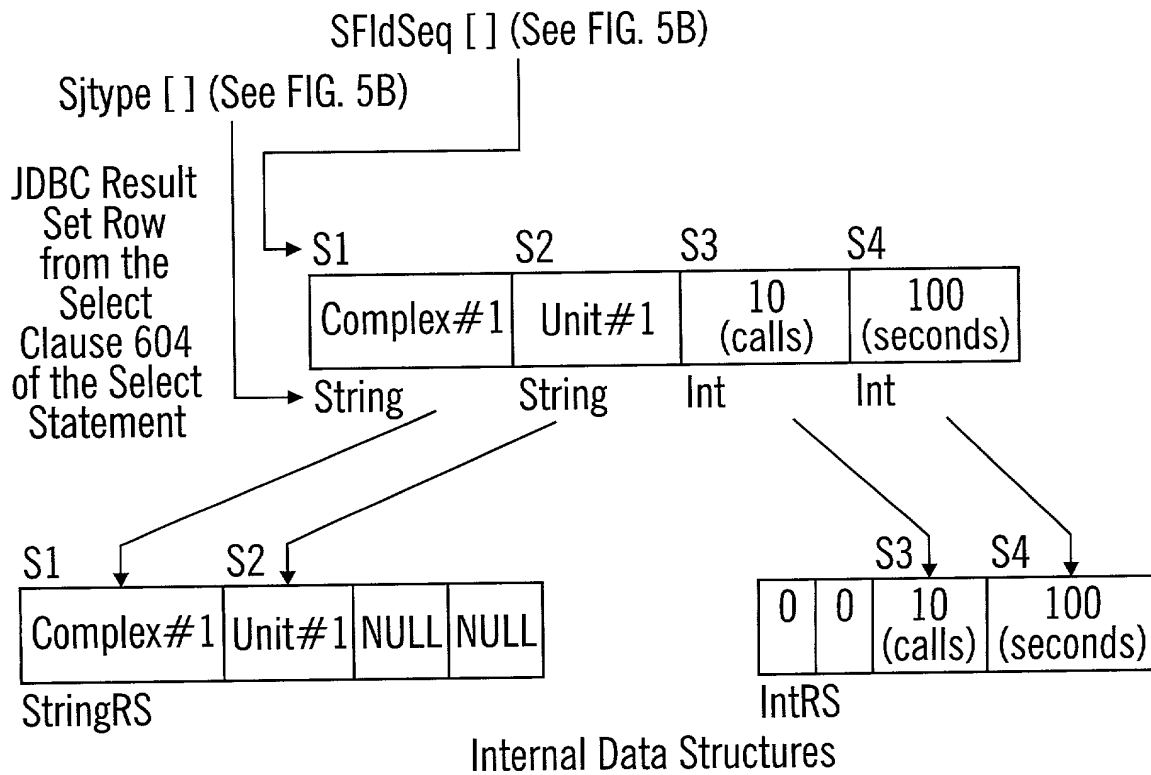


FIG. 7B

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2
--	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	---

FIG. 8A1

FIG. 8A2

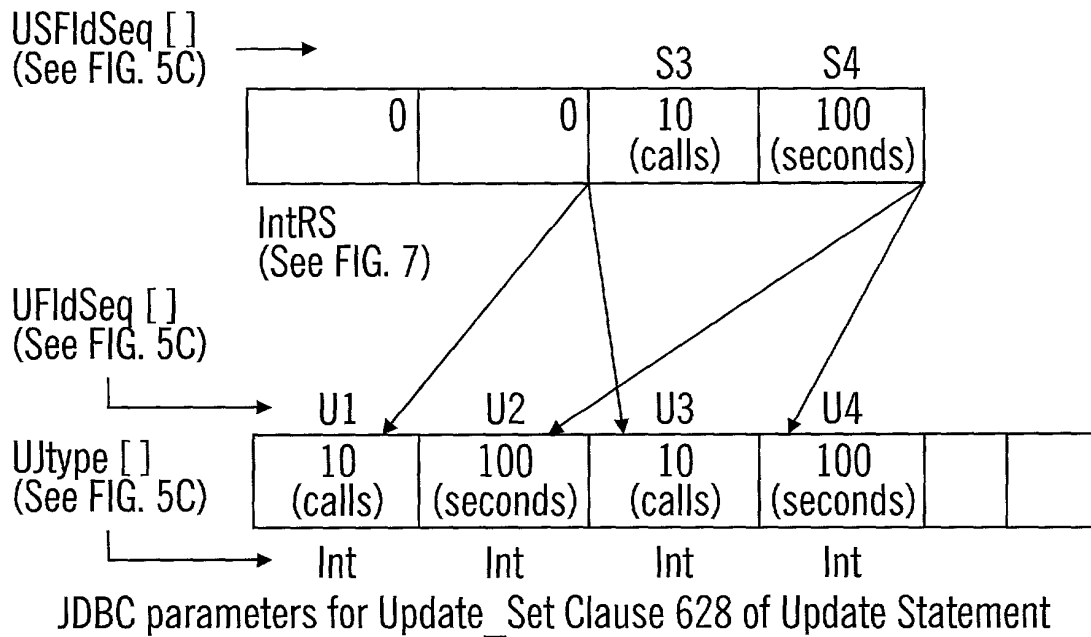


FIG. 8A3

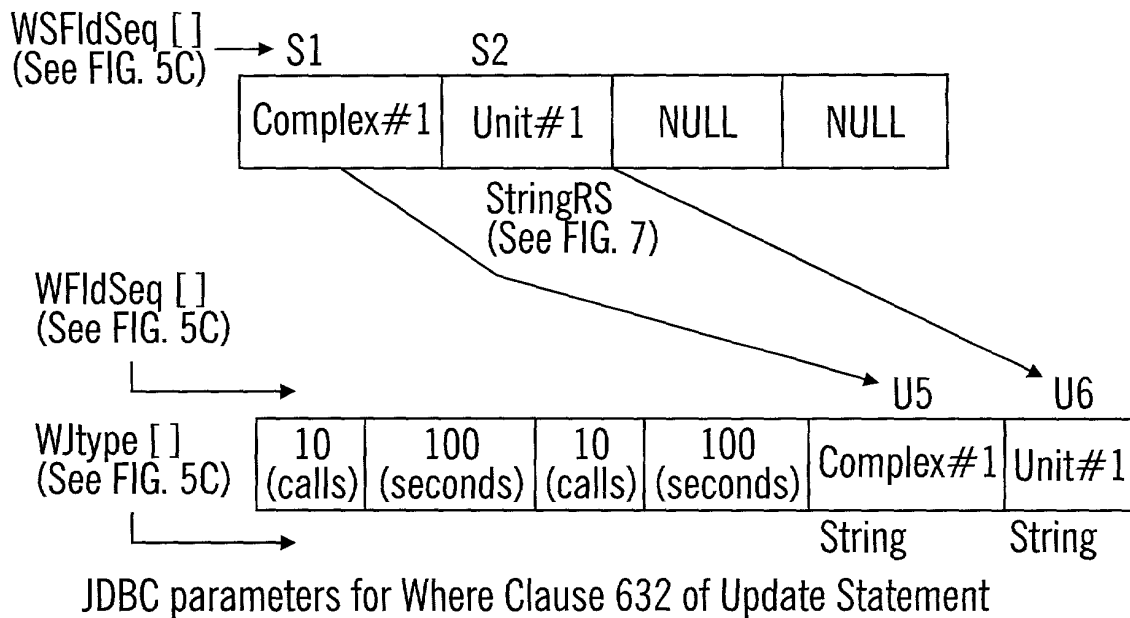


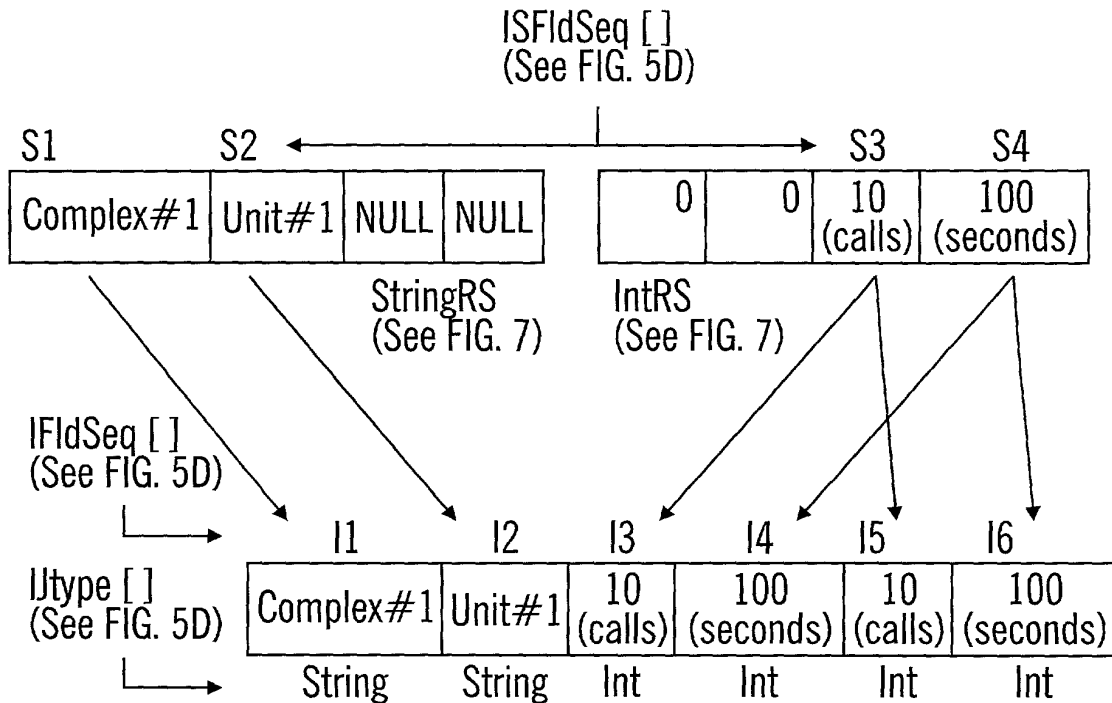
FIG. 8A4

19/19

```
'INSERT INTO UnitStat(Complex, Unit, Calls, WrkTime, CumCalls,
CumWrkTime) VALUES (?,?,?,?,?,?)'
I1,I2,I3,I4,I5,I6
```

```
For i=1 to Isize
{
  j=IFldSeq[i]
  k=ISFldSeq[i]
  if IJType[i]='String'
    setString[j]=StringRS[k]
  else
    setint[j]=IntRS[k]
}
```

FIG. 9A



JDBC parameters for Values Clause 650 of Insert Statement

FIG. 9B